CHAPTER 3

AFFECTED ENVIRONMENT

This chapter generally describes the character of the environment in which the proposed actions could occur: the "affected environment." The term "affected environment" is used to describe the areas and resources within and surrounding the project area that may potentially be affected by the proposed airport improvements. Detailed descriptions of the existing condition of each resource are included in **Chapter 4, *Environmental Consequences***.

3.1 Area Environs

A description of the region in the vicinity of Kodiak Airport is provided in **Section 1.1.1, Local Setting**. This section provides an overview of the area environs near Kodiak Airport. The Airport is within the Kodiak Island Borough but beyond the City of Kodiak municipal boundaries. The Airport is situated along the shoreline of Womens Bay to the southwest and St. Paul Harbor to the northeast, in Chiniak Bay. The City of Kodiak's southernmost boundary lies two miles north of the Airport, and the land use surrounding the Airport is mostly undeveloped. The Airport is located on the U.S. Coast Guard's Base Support Unit Kodiak (referred to as the USCG Base). The USCG Base is located directly south and west of the Airport and contains USCG facilities and housing. The Airport is also located on the edge of mountainous terrain, with Barometer Mountain located just west of Runway 07/25. **Figure 3-1** illustrates the airport vicinity and its surrounding environs.

The Airport lies directly adjacent to waterways, with the ocean bordering the eastern edge of the Airport and water neighboring three of the six runway ends. Because of its coastal location, the Airport's environs are unique and contain many natural resources on and adjacent to the property including an abundant diversity of fish and wildlife species. The existing conditions for each individual resource are further detailed in **Chapter 4, *Environmental Consequences***. The Buskin River and the associated Buskin River estuary flow into the ocean and are located directly north of the Airport, off of Runway end 18. The Buskin River State Recreation Site, an important site for recreation and subsistence use, is located to the north of and adjacent to the Airport and the Buskin River. The Buskin River includes important habitat for terrestrial animals and plants, aquatic invertebrates, and fish. South of Runway end 36 is Finny Beach, part of the USCG Base and another important recreation area used by residents primarily for beachcombing. Additionally, part of the Alaska Maritime National Wildlife Refuge is located near the Airport, encompassing all of Womens Bay.

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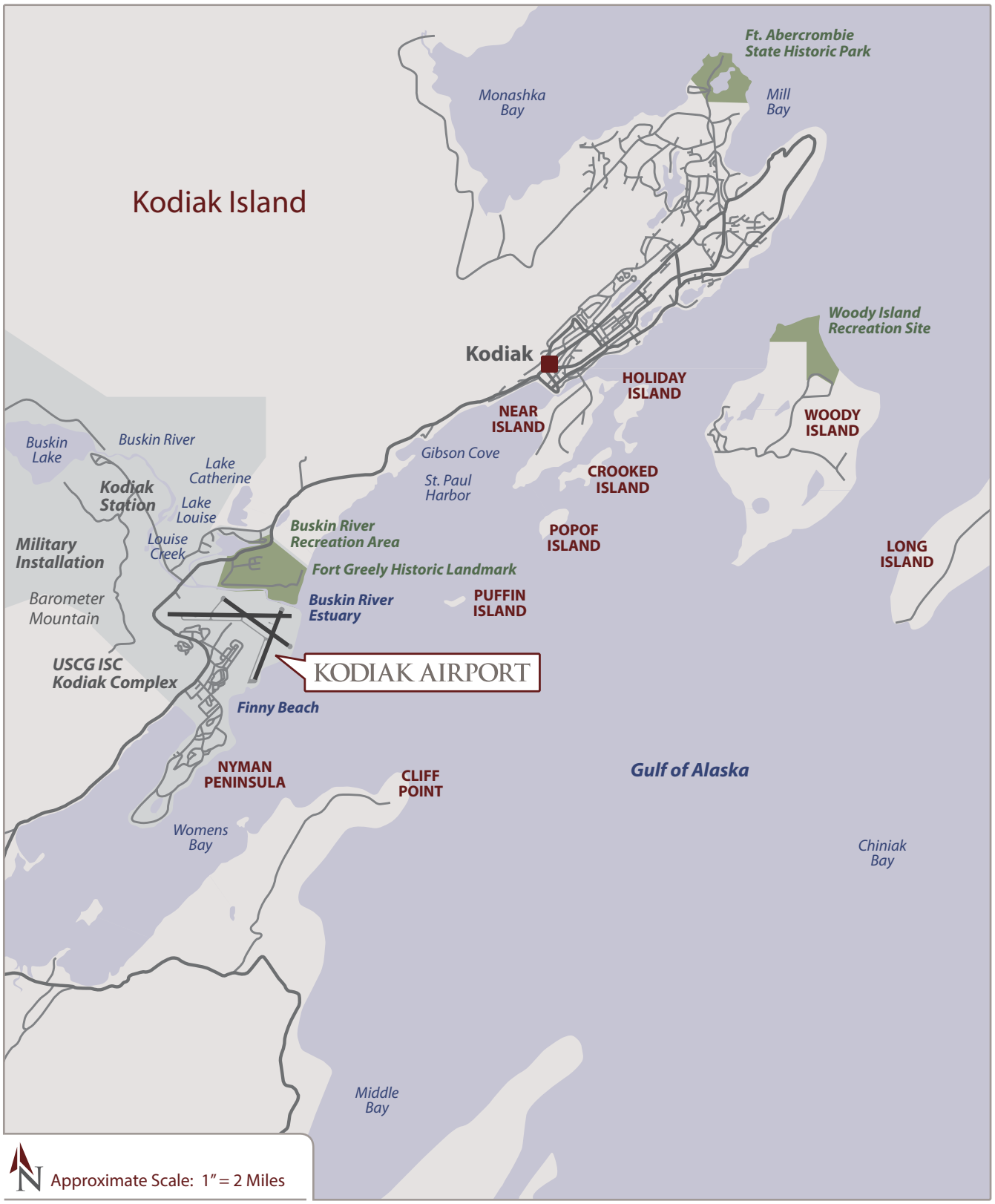

Figure 3-1 **Airport Environs**

Note: The Alaska National Wildlife Refuge encompasses all of Women's Bay

Source: Google 2008, Map Data, Tele Atlus, 2008

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3.2 Land Use

The Borough contains 4.8 million acres of land, including tidelands and submerged lands. Nearly 71% of the Borough (3.4 million acres) is federally owned, with much of that area consisting of public lands managed by the National Park Service and the U.S. Fish and Wildlife Service (USFWS) (see **Table 3-1**). The State of Alaska owns approximately 13.3% of the land within the Borough.

Guidelines and policies for land use in the Kodiak area have been developed by several different governmental agencies, including the Borough, the Alaska Department of Natural Resources (ADNR), and the Alaska Coastal Management Program (ACMP). In general, the policies refer to lands under the control of that specific agency but there is some overlap in jurisdiction. Guidelines and policies for land use in the Kodiak area have been developed by several different governmental agencies, including the Kodiak Island Borough, the Alaska Department of Natural Resources (ADNR), and ACMP. In general, the policies refer to lands under the control of that specific agency, although there is some overlap in jurisdiction.

The USCG owns the Airport and leases the facility to the Alaska Department of Transportation and Public Facilities (ADOT&PF), which operates the Airport. The USCG Base station housing units are the only residential structures near the Airport. The nearby Buskin River State Recreation Site is a 168-acre parcel that is located on land owned by USCG and managed by the ADNR under a permit from USCG. The land use and jurisdiction are detailed in **Section 4.13, *Compatible Land Use***.

Portions of the Alaska Maritime National Wildlife Refuge are adjacent to the Airport. This refuge encompasses the submerged lands adjacent to the Kodiak Airport, including the submerged lands off the runway ends. The refuge was established by the Alaska National Interest Lands Conservation Act (ANILCA). The Refuge's purpose as set out in ANILCA Section 303 (1)(B) is: i) to conserve fish and wildlife populations and habitats in their natural diversity including, but not limited to marine mammals, marine birds and other migratory birds, the marine resources upon which they rely, bears, caribou and other mammals; ii) to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats; iii) to provide, in a manner consistent with the purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents; iv) to provide a program of national and international scientific research on marine resources; and v) to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the refuge.

The refuge includes 4.9 million acres providing habitat for some 40 million seabirds, representing more than 30 species. The refuge is comprised of many islands, islets, spires, rocks, reefs, waters and headlands extending from Forrester Island to the north of Canada's Queen Charlotte Islands, deep into the southeast tongue of the state, to the westernmost tip of the Aleutians, and north to Cape Lisburne in the Arctic Ocean. Within the airport area, the refuge includes offshore public lands on islands, islets, rocks, reefs, and spires within the refuge.

The refuge also includes submerged lands in Womens Bay and portions of St. Paul Harbor and Chiniak Bay. A permit would be required to authorize the use and occupancy of certain lands (submerged lands) located within the Alaska Maritime National Wildlife Refuge, and would require concurrence between USCG (primary jurisdiction) and the USFWS (secondary jurisdiction).

3.3 Historical Context

While much of the land surrounding the Airport is undeveloped, human activity has shaped the Kodiak area for as many as 7,000 years or more. The airport area was used by hunter-gatherer communities of the prehistoric and ethnographic periods and by an agricultural settlement of the Russian-American Company during the height of the fur trade. It is currently used for the Airport and the USCG Base.

Due to the extensive historical use of the airport property, historical and archaeological sites from the distant past have been found in the area. However, World War II and post-war military development of the land left the most prevalent historic remains. During World War II, the Airport was used as the Kodiak Naval Operating Base, and many of these historical resources are still present on and near airport property. The development of these naval facilities required extensive alteration of the natural environment to level the area for the construction of the naval air station. Southern portions of the Buskin River floodplain and delta were leveled and filled as part of the initial construction of the Airport. Devils Creek (a tributary to the Buskin River) was diverted and placed in a culvert under the Airport. Throughout World War II, the area was used as an airfield by the Navy and the USCG began using the airfield in 1947. Currently, the USCG owns the entire airport property area and ADOT&PF manages the Airport under leases from the USCG. Because of the historic use of the area, there is potential for historical or cultural artifacts to be unearthed. **Section 4.9, *Historical, Architectural, Archaeological, and Cultural Resources***, details the historical, architectural, archaeological, and cultural resources within the area.

3.4 Coastal and Marine Resources

As stated previously, the Airport lies directly adjacent to the coast and therefore is within close proximity of important coastal resources. Prior to July 1, 2011, the State of Alaska had a Coastal Zone Management Program. On July 1, 2011, this program expired and was not extended. Therefore, the Coastal Zone Management Act no longer applies to federal projects in Alaska. However, due to the close proximity of the coastal environment, there would be impacts to the coastal area related to separate resource categories such as subsistence, fisheries and construction. The existing conditions for these resources are detailed in the relevant resource sections of **Chapter 4, *Environmental Consequences***.

The waters just off of airport property are used by a variety of birds, fish species, marine invertebrates, and marine mammals. Areas around the Airport include waters of the Alaska Maritime National Wildlife Refuge Kodiak Management Unit, which are under the jurisdiction of USFWS and USCG. Recently, the Chiniak Bay area has also been designated by the Audubon society as a globally-significant "Important Bird Area" due to its habitat significance for a multitude of bird species.[1]

The abundant marine resources within the Kodiak area are important for the economy of Kodiak. Commercial fishing provides many jobs in the area and the marine resources are also used for subsistence practices by a majority of the Kodiak population. Marine resources are detailed further in **Section 4.5, *Fish and Invertebrates,* Section 4.6, *Waterbirds,*** and **Section 4.7, *Marine Mammals,*** and subsistence activities are described in **Section 4.11, *Subsistence***.

3.5 Freshwater Resources – Buskin River

The Buskin River is about 6.5 miles long and has several tributaries, including Devils Creek and Louise Creek, which make up the Buskin River watershed. This watershed ultimately drains into the ocean, just north of the Airport and covers an area of approximately 26 square miles (approximately 16,640 acres). The **Water Quality Appendix** details the Buskin River's watershed hydrology, geomorphology, and water quality. Devils Creek is the main tributary to the lower portion of the Buskin River and runs through the Airport. Devils Creek and the Buskin River have been highly modified within the Project Area by development of USCG facilities and the Airport. The channel in the lower portion of Devils Creek is fairly straight, and culverts divert the creek below an airport service road and Runway 07/25. Prior to human development, the lower Buskin River was a freely meandering alluvial-plain channel, and some areas still display these characteristics (Science Applications International Corporation [SAIC] 1995).

[1] http://iba.audubon.org/iba/profileReport.do?siteId=2923&navSite=search&pagerOffset=0&page=1

The Buskin River ranges from 40 feet to 80 feet wide in the airport area and alternates between shallow areas (riffles) and deep pools, with a variety of vegetation growing on the banks of the river. This vegetation helps stabilize the river channel and shades the water, which is an important habitat feature for many species of fish. The lower Buskin River extends downstream of the Chiniak Highway bridge to the river's discharge into Chiniak Bay. The gradient of the Buskin River in this reach is approximately 3.5 percent, which means that for every mile the river flows, it drops 185 feet in elevation. The estimated mean discharge of the river is 215 cubic feet per second.

These water bodies are extremely important for the natural and physical environment (habitat characteristics), for the diverse species of animals, plants, and other organisms that live in and use the water (biotic communities), and for the way in which the habitat supports those species (habitat function). Additionally, the Buskin River is an important source of subsistence resources for the Kodiak residents, a majority of whom participate in subsistence activities.

The Buskin River estuary, located just upstream from the mouth of the river, is the portion of the river that is influenced by ocean tides and salinity. The Buskin River estuary begins at the point where the fresh water of the Buskin River begins mixing with ocean water. Because the Buskin River flows into the ocean, the tide affects the way the river moves. Due to tidal influences, storm events, and river discharge, the mouth of the Buskin moves over time. The dynamic mouth of the Buskin River has moved from locations directly off Runway end 18 to its current location where its flow is directed northward into St. Paul Harbor. This movement of the river mouth affects the location of the barrier bar, which is used for recreation.

Some of the most common fish in the Buskin River are salmon, trout, and char (salmonids). The freshwater and estuary conditions of the Buskin River create important spawning habitat for several species of salmon. Salmon spend their adult lives in saltwater, but return to freshwater to spawn. The gravel in riffles is important for salmon to create spawning nests; these gravels are ideal for egg development and growth of the fish after the eggs hatch. The species and timing by life stage for the Buskin River species is detailed in **Table 3-1.**

The estuary also provides special water conditions for fish that are able to tolerate a wide range of salinity levels, both on a constant or on a seasonal basis. Estuaries are important habitats for juvenile salmonids and are often considered the nursery ground for the young of many species of fish and invertebrates. Estuaries are highly productive, complex environments with a variety of resources and sheltered hiding places. **Figure 3-1** shows the water features around the Airport including the Buskin River and Devils Creek and the wetlands described generally in the next section. Aquatic habitat at the Buskin River barrier bar is unique in that it offers one of the few low-gradient, soft-bottom areas available to juvenile salmonids from the Buskin River. These species enter marine waters via the Buskin River freshwater plume and require a transitional rearing period dependent on areas accessible by the plume. Therefore, the freshwater plume is considered a vital area for the salmonid species.

TABLE 3-1
BUSKIN RIVER SALMONID SPECIES OCCURRENCE/TIMING, BY LIFE STAGE

Species Life Stage	Fresh Water	Estuary	Marine (nearshore)
Pink salmon (*Oncorhynchus gorbuscha*)			
Eggs	Fall–early spring	--	--
Juveniles	Spring	Summer	Summer–early winter
Adults	--	Spring–fall	Spring–fall
Adult migration	July–Sept	--	--
Spawning	Aug–Sept	--	--
Chum salmon (*Oncorhynchus keta*)			
Eggs	Fall–winter	--	--
Juveniles	Spring	Summer	Summer–winter
Adults		Spring–fall	Spring–fall
Adult migration	July–Sept	--	--
Spawning	Aug–Sept	--	--
Coho (silver) salmon (*Oncorhynchus kisutch*)			
Eggs	Fall–winter	--	--
Juveniles	Year-round	Year-round	
Smolts	--		June–Sept
Adults	--	Late Aug–Oct	July–Sept
Adult migration	Late Aug–Oct	--	--
Spawning	Oct–Dec	--	--
Steelhead trout (*Oncorhynchus mykiss*)			
Eggs	Spring–mid summer	--	--
Juveniles	Year-round	--	--
Juvenile migration		Spring–early summer	Spring
Adults	Sept–May	--	
Adult migration	Sept–May	--	Sept–Nov
Spawning	April–May	--	--
Rainbow trout (*Oncorhynchus mykiss*)			
Eggs	Spring–mid summer		
Juveniles	Year-round		
Adults	Year-round		
Spawning	April–May		
Sockeye salmon (*Oncorhynchus nerka*)			
Eggs	Summer–winter		
Juveniles	Year-round	Summer–fall	Summer–winter
Adults		June–July	Year-round
Adult migration	June–July		
Dolly Varden char (*Salvelinus malma*)			
Eggs	Sept–April		
Juveniles	Year-round	May–June	May–June
Adults	Sept–March		
Adult migration	July–Oct	Fall and spring	Fall and spring
Spawning	Sept–Nov		

Sources: SWCA 2007, 2008, 2009; personal com., J. Dinnocenzo 2008; Wynne et al. 2005. ***Note:*** -- Indicates not applicable.

3.6 Wetlands and other Waters of the U.S.

Wetlands and other Waters of the U.S. may be classified "jurisdictional" or "non-jurisdictional." Jurisdictional wetlands and designated Waters of the U.S. are under the authority of the Army Corps of Engineers (ACOE). The ACOE has jurisdiction to regulate Waters of the U.S. and navigable waters which include marine waters and tidal areas below Mean High Water (MHW), as well as rivers, streams, lakes, and some wetlands. The generalized water features in the area are depicted in **Figure 3-1**. *Section 404 of the Clean Water Act* gives the ACOE the authority to regulate disposal of dredge or fill material in waters of the U.S, including coastal wetlands, tidelands and marine waters below the High Tide Line (HTL), as well as streams and freshwater wetlands above the Ordinary High Water (OHW) line of streams that are adjacent to waters of the U.S.

Section 10 of the Rivers and Harbors Act of 1899 gives the ACOE jurisdiction over obstructions to navigation such as marinas and bulkheads in navigable waters. This jurisdiction extends landward to the MHW and to the head of tide on navigable waters.

The ACOE must be consulted whenever jurisdictional wetlands and other Waters of the U.S. are present. Waters of the U.S. include the ocean, from the High Tide Line (HTL) down, and are under the jurisdiction of the ACOE. Wetlands and other Waters of the U.S. are present within the airport area. These wetlands are described in greater detail in **Section 4.3, *Wetlands and Other Waters of the U.S.***

The following types of wetlands and other Waters of the U.S. were identified within the airport area: Palustrine Emergent Marsh Wetlands, Palustrine Scrub-Shrub Wetlands, Palustrine Forested Wetlands, Palustrine Forested Wetlands, Estuarine Intertidal Emergent Wetlands, and open water.

3.7 Water Quality

Water quality is important due to the variety of water resources in the airport area, including marine areas, freshwater features such as the Buskin River, and wetlands. Facilities on the Airport and associated with the USCG Base have existing pollutant discharges to these water resources.

The USCG lands, including land leased to the ADOT&PF for the Airport, operate subject to federal permits that regulate general storm water runoff, runoff associated with fuel storage facilities, and effluent from the wastewater treatment plant. Three outfalls are associated with the fuel storage facility. These three outfalls are located near Finny Beach and Womens Bay. Treated wastewater from the USCG Base is discharged by way of an outfall into St. Paul Harbor. The baseline water quality of the area is described in detail in **Section 4.2, *Water Quality***.

3.8 Terrestrial Resources

Kodiak Island is dominated by mountains, forests, bays, inlets, and wetlands. Spruce forests make up much of the interior. The most important terrestrial habitat within the airport environs centers on the Buskin River. This riparian area is an important resource for many species of plants and animals, both terrestrial and aquatic. The area on and immediately surrounding the Airport is composed of rocky shore, sand and gravel beach, Elymus grassland, Elymus forb and meadow, alder-salmonberry-elderberry, Sitka spruce forest, alder willow mix, freshwater wetland, sedge march, disturbed ground, open water, and the ocean. These cover types and the associated species in each habitat are described in detail in **Section 4.6, *Terrestrial Vegetation and Wildlife***.

3.9 Subsistence

While there are many popular cultural and sociological definitions and interpretations of subsistence, in 1980, Congress provided a legal description of subsistence in Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) (P.L. 96-487). Section 803 of ANILCA defines subsistence use as:

> The customary and traditional uses by rural Alaska residents of wild renewable resources for direct, personal, or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.

Under Alaska state law, "subsistence uses" are defined as:

> the noncommercial, customary and traditional uses of wild, renewable resources by a resident domiciled in a rural area of the state for direct personal or family consumption, such as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; and for customary trade, barter, or sharing for personal or family consumption. (AS 16.05.940[32])

The Kodiak Airport area consists of private, state, and federal lands. In addition, the airport area includes waters of the Alaska Maritime National Wildlife Refuge - Kodiak Management Unit, which are under the jurisdiction of the USFWS. The jurisdiction of different legal frameworks to regulate subsistence varies based on land ownership. The State of Alaska administers the harvest of fish and wildlife, including for subsistence purposes, except as specifically superseded by federal law.

When necessary to implement a federal subsistence priority under the terms of Title VIII of ANILCA, the Federal Subsistence Board regulates subsistence hunting on federally administered uplands and fishing on waters where a federal reserved water right exists.

For Alaskans, subsistence is more than the harvesting, processing, sharing, and trading of natural resources. For many people, subsistence embodies cultural, social, and spiritual values at the core of Alaska Native and rural Alaskan culture. Subsistence in Alaska comprises a diverse set of localized systems of resource production and distribution representing unique combinations of ecology, community, culture, and economy.[2] Subsistence resources are highly valued by and central to the customs and traditions of many cultural groups in Alaska.

Subsistence in Alaska is part of a rural economic system referred to as a mixed subsistence-market economy. Under this market system, families invest money in small-scale, efficient technologies to harvest wild foods. Fishing, hunting, and gathering subsistence resources provide a reliable economic base for many rural communities. The majority of Kodiak Island residents use subsistence resources of some sort.

Resources harvested from the airport area include salmon, cod, flounder, halibut, crab, octopus, shrimp, goat, red fox, beaver, otter (sea and river), seaweed and kelp, and wood. Households both within and outside the local area generally trade and share resources. Many of the clam species are not harvested locally due to paralytic shellfish poisoning risks. Within the immediate airport area, the most likely resources to be present are the marine, intertidal, and riverine species, including anadromous fish (such as salmonids).

The Buskin River and the Buskin River estuary are considered the most important subsistence resources within the immediate vicinity of the Airport, due mainly to the high quality of spawning habitat for salmonids. The Buskin River area is also considered the most important subsistence resource due to its proximity to the City of Kodiak. Other high-quality subsistence resources are located much further away from the city, many of which require access by boat. Access to distant subsistence resources by boat or airplane is physically more difficult and expensive for local residents. **Section 4.9, *Subsistence***, describes the subsistence resources in detail and the potential impact on these resources from the proposed project.

[2] Wolfe, Robert J. *Local Traditions and Subsistence: A Synopsis from Twenty-Five Years of Research by the State of Alaska*, Technical Paper 284. Alaska Department of Fish and Game, Division of Subsistence. Juneau, AK: 2004, 2.

3.10
Recreation Sites and Wildlife Refuge

Three areas in close proximity to the Airport are important local recreation sites: the Buskin River State Recreation Site, the Buskin River Beach, and Finny Beach. The Buskin River State Recreation Site is located north of the Airport directly off Runway end 18. As stated above, the site is a 168-acre parcel on land owned by the USCG and managed by ADNR under a permit from the USCG. The site contains parking and camping facilities and access to trails, fishing, and the beach. It is important to Kodiak residents as well as visitors for both recreation and subsistence activities. Additionally, the site is a large attraction for tourism during salmon spawning season; tourism makes up an increasing portion of the Kodiak area economy.

The Buskin River Beach is located to the north and south of the river's mouth. This beach is used for beachcombing, subsistence uses, and fishing. Finny Beach is located on USCG property, south of Runway end 36, along the shore of Womens Bay. This beach is used for beachcombing and collection of sea glass.

Portions of the waters of the Alaska Maritime National Wildlife Refuge are located north and east of the Airport.

Section 303(c) of Title 49 of the U.S. Code was originally enacted as *Section 4(f) of the Department of Transportation Act of 1966* and is still commonly referred to as "Section 4(f)." This law provides for the protection of certain publicly-owned lands, including public parks, recreation areas, wildlife and waterfowl refuges of national, state, or local significance, and protection of any land of a historic site of national, state, or local significance. Programs or projects requiring the use of Section 4(f) resources will not be approved by the FAA unless there is no prudent and feasible alternative to the use of such land, and such programs include all possible planning to minimize harm resulting from the use. The 4(f) analysis is described in detail in **Chapter 4**, ***Environmental Consequences***, **Section 4.14, Department of Transportation Act, Section 4(f)**.